

Precision Servos

Digital servos for lightweight control and demanding loads

Compare dimensions, supply voltage, torque and speed to select a servo for aircraft control surfaces, RC steering or robotic mechanisms. Each model includes performance at specific test voltages, mounting drawings and Chinese and English documentation to support integration.



AXR 7341 NG-D



AXR 8812 MG-D



AXR R9180 16.8V

58 digital servos · 205 test points

Stall torque is not a continuous load rating. Consider rated torque and duty cycle when sizing the mechanism. The operating range specifies allowable supply voltage; it does not imply that test data exist at every voltage.

Servo selection: torque, speed and power together

Calculate torque at the output shaft

For a force acting perpendicular to the servo arm, torque is $T = F \times r$. Include acceleration, shock, friction and the least favourable operating position. One kg·cm is approximately 0.0981 N·m. Stall torque is measured with the shaft prevented from rotating; it is not a continuous output rating. Check rated torque at its stated voltage, then validate temperature rise and the duty cycle on a prototype.

Compare speed at the same voltage

No-load speed is commonly expressed as seconds per 60° of travel: a smaller value means faster unloaded movement. It does not specify loaded response, positioning accuracy or system-level control performance. The selector can compare a specific test voltage; missing measurements are not interpolated. Before increasing the supply voltage, check the limits of the servo, regulator and control equipment.

Design for simultaneous movement

Running current and stall current describe different operating conditions. Several servos starting, reversing or meeting resistance together can create substantial current peaks. Assess the BEC or separate supply against the motion sequence, cable length, voltage drop and connector capacity. Begin with current-limited testing, increase the load gradually and monitor voltage and temperature so a supply-related reset is not mistaken for a signal fault.

Check mounting and control together

Match body size, mounting-hole spacing, shaft height, horn and linkage clearance. PWM frame rate and pulse width are separate parameters; the listed 1520 µs reference pulse and the 1500 µs centre in the position table also need to be checked separately. Set centre and safe travel with the linkage disconnected, then verify both end stops after assembly. Do not infer an IP rating or gear material from a model suffix.

Micro servos

Micro servos

Lightweight platforms are often limited by mass and installation space. Micro servos are a useful starting point for small control surfaces and compact linkages. Required torque still depends on the load, lever arm and movement speed, so compare specifications at the intended supply voltage.

Model	Stall torque kg·cm / V	No-load speed s/60°	Dimensions mm	Weight g
AXR 7341 NG-D	1.8 @ 7.4	0.07	19.6 × 8.3 × 19.85	4.5
AXR 7350 MG-D	1.8 @ 7.4	0.07	19.6 × 8.3 × 19.85	5.5
AXR 7306 MG-D	2.5 @ 8.4	0.061	20 × 7 × 19.1	7.8
AXR 7308 MG-D	3.5 @ 8.4	0.065	23.5 × 8 × 16.6	8.8
AXR 7308plus MG-D	6.5 @ 8.4	0.06	23.5 × 8 × 16.6	10.2
AXR 7307 MG-D	3 @ 8.4	0.052	19.6 × 8 × 21.8	7.1

Stall torque is not a continuous load rating. Consider rated torque and duty cycle when sizing the mechanism. The operating range specifies allowable supply voltage; it does not imply that test data exist at every voltage.

<https://axrsystems.com/en/products/category/servos/micro/>

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Model	Stall torque kg·cm / V	No-load speed s/60°	Dimensions mm	Weight g
AXR 7310 MG-D	2.8 @ 8.4	0.031	20 × 11.3 × 21.1	9.8
AXR 7452 MG-D	4.5 @ 7.4	0.105	23.6 × 11.7 × 21.3	12.55
AXR 7455 MG-D	5.3 @ 7.4	0.101	23.6 × 11.7 × 21.3	13

Stall torque is not a continuous load rating. Consider rated torque and duty cycle when sizing the mechanism. The operating range specifies allowable supply voltage; it does not imply that test data exist at every voltage.

<https://axrsystems.com/en/products/category/servos/micro/>

Mini servos

Mini servos

Mini servos offer additional torque options within a compact envelope. Check output-shaft position, mounting-hole spacing and connector clearance together. A longer servo arm reduces available linkage force; model names and peak torque alone do not establish compatibility.

Model	Stall torque kg·cm / V	No-load speed s/60°	Dimensions mm	Weight g
AXR 8460 MG-D	4.6 @ 7.4	0.059	23.5 × 11.8 × 27.9	16.7
AXR 8462 MG-D	7.6 @ 7.4	0.076	23.5 × 11.8 × 27.9	16.7
AXR 9495 MG-D	6.3 @ 8.4	0.041	23 × 12 × 26.8	19.2
AXR 9497 MG-D	13.2 @ 8.4	0.066	23 × 12 × 26.8	19.2
AXR 9490 MG-D	13.2 @ 8.4	0.079	23 × 12 × 26.8	21.4
AXR 9492 MG-D	13.5 @ 8.4	0.062	23 × 12 × 26.8	22.2

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Model	Stall torque kg·cm / V	No-load speed s/60°	Dimensions mm	Weight g
AXR 8482 MG-D	7.3 @ 7.4	0.059	30 × 11.9 × 26.3	18.3
AXR 8515 MG-D	15 @ 8.4	0.087	28 × 12.6 × 26.8	25
AXR 8525 MG-D	13 @ 8.4	0.09	30 × 10 × 35.2	28.7

Stall torque is not a continuous load rating. Consider rated torque and duty cycle when sizing the mechanism. The operating range specifies allowable supply voltage; it does not imply that test data exist at every voltage.

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Wing servos

Wing servos

Wing installations need clearance for the arm, linkage and cable as well as the servo body. Aileron and flap loads change with flight conditions. Size the linkage for the maximum design load and validate mounting stiffness and centring in the assembled system.

Model	Stall torque kg·cm / V	No-load speed s/60°	Dimensions mm	Weight g
AXR 7462-W MG-D	4.9 @ 8.4	0.078	23.7 × 12 × 26.6	13 ±0.5
AXR 7465-W MG-D	5.8 @ 8.4	0.07	23.7 × 12 × 26.6	13 ±0.5
AXR 7465Plus MG-D	9.3 @ 8.4	0.061	23.7 × 12 × 26.6	13.2 ±0.5

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<https://axrsystems.com/en/products/category/servos/slim/>

Standard servos

Standard servos

Standard servos cover RC steering, control surfaces and general mechanisms, but similar dimensions can conceal large differences in torque, speed and current. Establish the load, duty cycle and power capacity first, then compare gear and motor configurations rather than selecting on peak torque alone.

Model	Stall torque kg·cm / V	No-load speed s/60°	Dimensions mm	Weight g
AXR 8812 MG-D	15 @ 8.4	0.096	30 × 10 × 35.2	28.7
AXR 8815 MG-D	15 @ 8.4	0.096	30 × 10 × 29.6	23.5
AXR 8810 SSG-D	10 @ 8.4	0.062	35.5 × 15 × 32	46
AXR 8816 SSG-D	16 @ 8.4	0.1	35.5 × 15 × 29.9	42
AXR 8820 SSG-D	20 @ 8.4	0.081	35.5 × 15 × 29.9	42
AXR 8822 SSG-D	22 @ 8.4	0.101	35.5 × 15 × 29.9	46

Stall torque is not a continuous load rating. Consider rated torque and duty cycle when sizing the mechanism. The operating range specifies allowable supply voltage; it does not imply that test data exist at every voltage.

<https://axrsystems.com/en/products/category/servos/standard/>

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Model	Stall torque kg·cm / V	No-load speed s/60°	Dimensions mm	Weight g
AXR 8825 SSG-D	25 @ 8.4	0.102	35.5 × 15 × 32.4	52
AXR 8828 SSG-D	28 @ 8.4	0.105	35.5 × 15 × 36.4	52
AXR 6801 TG	7.3 @ 7.4	0.114	40 × 20 × 36.3	40.2
AXR 6812 TG	23 @ 7.4	0.095	40 × 20 × 36.3	49
AXR 6820 MG-D	27 @ 8.4	0.087	40 × 20 × 35.5	53
AXR 6830 MG-D	38 @ 8.4	0.11	40 × 20 × 35.5	53

Stall torque is not a continuous load rating. Consider rated torque and duty cycle when sizing the mechanism. The operating range specifies allowable supply voltage; it does not imply that test data exist at every voltage.

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Model	Stall torque kg·cm / V	No-load speed s/60°	Dimensions mm	Weight g
AXR 6835 MG-D	40 @ 8.4	0.124	40.9 × 20 × 39.4	64.8
AXR 8830 MG-D	40 @ 8.4	0.147	40 × 20 × 36.6	64
AXR 8832 MG-D	28 @ 8.4	0.101	40 × 20 × 36.6	60
AXR 8835 MG-D	42 @ 8.4	0.143	40 × 20 × 40.4	71
AXR 8840 MG-D	45 @ 8.4	0.1	40 × 20 × 36.6	70
AXR 8842 MG-D	32 @ 8.4	0.063	40 × 20 × 36.6	70

Stall torque is not a continuous load rating. Consider rated torque and duty cycle when sizing the mechanism. The operating range specifies allowable supply voltage; it does not imply that test data exist at every voltage.

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Model	Stall torque kg·cm / V	No-load speed s/60°	Dimensions mm	Weight g
AXR 8850 MG-D	42 @ 8.4	0.086	40 × 20 × 36.6	70
AXR 8852 MG-D	30 @ 8.4	0.054	40 × 20 × 36.6	70
AXR 8860 MG-D	70 @ 8.4	0.11	40 × 20 × 40.4	80
AXR 8862 MG-D	72 @ 8.4	0.105	40 × 20 × 40.4	80
AXR 9835 MG-D	36 @ 8.4	0.074	40 × 20 × 35.7	76
AXR 9840 MG-D	35 @ 8.4	0.11	40 × 20 × 35.7	70

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Standard servos cover RC steering, control surfaces and general mechanisms, but similar dimensions can conceal large differences in torque, speed and current. Establish the load, duty cycle and power capacity first, then compare gear and motor configurations rather than selecting on peak torque alone.

Model	Stall torque kg·cm / V	No-load speed s/60°	Dimensions mm	Weight g
AXR 9845 MG-D	50 @ 8.4	0.074	40 × 20 × 36.8	76
AXR 9850 MG-D	50 @ 8.4	0.09	40 × 20 × 36.8	75
AXR 9860 MG-D	67 @ 8.4	0.098	40 × 20 × 40.4	84
AXR 9870 MG-D	75 @ 8.4	0.091	40 × 20 × 40.4	86
AXR 9110 MG-D	100 @ 16.8	0.082	40 × 20 × 40.4	88

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<https://axrsystems.com/en/products/category/servos/standard/>

Low-profile servos

Low-profile servos

Low-profile housings suit chassis with limited installation height. Fast steering depends on servo speed, tyre loads, steering geometry and voltage drop together. Verify spline, arm and receiver-signal compatibility, and set travel limits to prevent the linkage from holding the servo stalled.

Model	Stall torque kg·cm / V	No-load speed s/60°	Dimensions mm	Weight g
AXR 9712 TG-D	18 @ 8.4	0.075	40.4 × 20 × 27.9	56
AXR 9715 TG-D	20 @ 8.4	0.055	40.4 × 20 × 27.9	56
AXR 9718 TG-D	23 @ 8.4	0.042	42.2 × 20 × 27	60.2
AXR 9752 TG-D	25 @ 8.4	0.052	42.2 × 20 × 27	60.2
AXR 9732 MG-D	65 @ 8.4	0.078	40.5 × 20 × 32	80
AXR 9742 MG-D	85 @ 16.8	0.065	40.5 × 20 × 32	80

Stall torque is not a continuous load rating. Consider rated torque and duty cycle when sizing the mechanism. The operating range specifies allowable supply voltage; it does not imply that test data exist at every voltage.

<https://axrsystems.com/en/products/category/servos/low/>

Large-format servos

Large-format servos

For high-load positioning, prioritise rated torque, peak current and structural stiffness. Stall torque is not a continuous-duty rating. Robotic joints also require system validation of inertia, acceleration, duty cycle and mechanical protection.

Model	Stall torque kg·cm / V	No-load speed s/60°	Dimensions mm	Weight g
AXR R9180 16.8V	222 @ 16.8	0.104	64 × 31.5 × 73	380
AXR R9180 28V	200 @ 28	0.16	64 × 31.5 × 73	380

Stall torque is not a continuous load rating. Consider rated torque and duty cycle when sizing the mechanism. The operating range specifies allowable supply voltage; it does not imply that test data exist at every voltage.

<https://axrsystems.com/en/products/category/servos/large/>

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AXR SERVO CATALOG



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